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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/616,635 | 07/10/2003 | Michael Billcci | POU920030094US1 | 3411 |

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05/16/2007

EXAMINER

MANOSKEY, JOSEPH D

ART UNIT

PAPER NUMBER

2113

MAIL DATE

DELIVERY MODE

05/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/616,635 | Applicant(s) BILLECI ET AL. | |
| | Examiner Joseph D. Manoskey | Art Unit 2113 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-7 and 9-18 is/are allowed.
- 6) ☒ Claim(s) 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahle et al., U.S. Patent 6,543,002, hereinafter referred to as "Kahle" in view of Hayase, U.S. Patent App. Pub. 2003/0192034.
3. Referring to claim 19, Kahle teaches detecting hang which counts the number of cycles. A hang cycle register defines the maximum interval between assertions of completion valid signals that initiates a hang recovery sequence. Another register determines the interval between reject signal to the flush signal. This is interpreted as a method of pre-detecting a hardware hang in a processor, the method comprising: maintaining a count of a number of cycles in a predefined time interval without an instruction being completed; detecting a pre-hang condition if said count is within N counts of a hang limit; and detecting a hang condition if said count equals said hang limit (See Col. 7, line 1-21).

Kahle does not teach initiating trace capture in response to detecting said pre-hand conditions. Hayase teaches using a real-time trace mode before the hang up timer finishes and then using a full trace mode after the time period has passed, indicating a hang up (See Hayase, paragraph 0061). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the trace during the hang of Hayase with hang detection of Kahle. This would have been obvious to one of ordinary skill in the art at the time of the invention to do because if the operation of the CPU can be analyzed in detail from just before the hang up (See Hayase, paragraph 0061).

4. Referring to claim 20, Kahle teaches detecting hang which counts the number of cycles. A hang cycle register defines the maximum interval between assertions of completion valid signals that initiates a hang recovery sequence. Another register determines the interval between reject signal to the flush signal. This is interpreted as a system for pre-detecting a hardware hang in a processor, the system comprising: a hang counter maintaining a count of a number of cycles in a predefined time interval without an instruction being completed; a pre-hang detector detecting a pre-hang condition if said hang counter is within N counts of a hang limit; and a hang detector resetting said pre-hang detect latch if said hang counter equals said hang limit (See Col. 7, line 1-21).

Kahle does not teach a pre-hang detect latch initiating trace capture in response to said pre-hang detector detecting a pre-hang condition. Hayase teaches using a real-

time trace mode before the hang up timer finishes and then using a full trace mode after the time period has passed, indicating a hang up (See Hayase, paragraph 0061). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the trace during the hang of Hayase with hang detection of Kahle. This would have been obvious to one of ordinary skill in the art at the time of the invention to do because if the operation of the CPU can be analyzed in detail from just before the hang up (See Hayase, paragraph 0061).

Allowable Subject Matter

5. Claims 1, 3-7, 9-18 are allowed.

Response to Arguments

6. Applicant's arguments, see pages 7-9 of amendment, filed 20 February 2007, with respect to claims 1, 3-7, and 9-18 have been fully considered and are persuasive. The 35 U.S.C. 102(b) rejection of claims 1, 3-7, and 9-18 has been withdrawn.

7. Applicant's arguments, see page 9 of amendment, filed 20 February 2007, with respect to the rejection(s) of claim(s) 19 and 20 under 35 U.S.C. 102(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new found prior art, see above rejections.


Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Manoskey whose telephone number is (571) 272-3648. The examiner can normally be reached on Mon.-Fri. (7:30am to 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JDM
May 9, 2007


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